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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/459,022	12/10/1999	MING CHENG	38-21(15084)	9594
27161	7590	09/22/2004	EXAMINER	
MONSANTO COMPANY 800 N. LINDBERGH BLVD. ATTENTION: G.P. WUELLNER, IP PARALEGAL, (E2NA) ST. LOUIS, MO 63167			HELMER, GEORGIA L	
			ART UNIT	PAPER NUMBER
			1638	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/459,022

Applicant(s)

CHENG ET AL.

Examiner

Georgia L. Helmer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 21 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,7-9 and 18-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-9 and 18-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Status of the Claims

1. The Office acknowledges receipt of Applicants Response, dated 21 June 2004.
2. Applicant has added new claims 24-27 and claims 1, 18, 20 and 22 have been amended. Claims 1,2, 7-9 and 18-27 are pending and are examined in the instant action.
3. This action is made FINAL necessitated by Applicant's amendment.
4. All rejections not addressed below have been withdrawn.
5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112-second paragraph

6. Claims 1,2, 7-9 and 18-23 are rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 (a) has been amended to recite "structural DNA sequence" (line 5). It is unclear how a "structural DNA sequence" differs from a non-structural DNA sequence, as all sequences have a structure.

Claim 7, 8, and 9 depend on claim 3, which has been cancelled.

In claims 20, how does a "scorable marker" differ from a "screenable" marker?

In claims 24-27, Applicant's use of "media" is not consistent with the art. In tissue culture, media is something which nutritionally supports plant growth/development. As filter paper does not perform this function, it is not "media".

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All subsequent recitations of this language are also rejected.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1,2, 7-9 and 18-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chee, P, et al, in *Agrobacterium Protocols*, K. Gartland and M Davey, eds, (1995) Humana Press, Totowa, NJ, pages 101-119, in view of Hua, et. al., *Plant Physiology* (Rockville), (1989) Vol. 89, No. 4 SUPPL, pp. 188, July 30-August 3, 1989.

Chee teaches a method for producing a fertile transgenic soybean plant (p 118) comprising introducing one or more genetic components (p 103, Figure 1, and p 107, all), coculturing a soybean cotyledon explant with *Agrobacterium* containing the genetic component (p 107, item (4)) under conditions that decrease the weight of the explant (p 107, item (5)). Chee further teaches a precultured tissue (p 107, all) and use of a moisture-removal period after inoculation with *Agrobacterium* where the time period is 4 days (p 107, item (5)). Chee et. al. also teaches the use of media which is paper. They use paper towels, which are functionally the same as filter paper.

Chee, et. al. does not teach hypocotyls or embryos.

Hua, et. al. teaches the use of soybean hypocotyl explants for *Agrobacterium* transformation of soybean. Hua, et. al. use the same plant (soybean) at approximately the same age and developmental stage as Chee, et. al. Hua, et. al. also provides

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motivation for using hypocotyls as the explant for these experiments saying "the advantages of hypocotyl explants transformations are the ease in generating uniform sterile seedlings and then excising and cocultivating large numbers of explants". Given the recognition of one of ordinary skill in the art of the value of a method of a soybean transformation which is efficient, uniform and easy, one of ordinary skill in the art would have been motivated to substitute the hypocotyl method of Hua, et. al. for the cotyledons of Chee, with a reasonable expectation of success. The use of soybean immature embryos is an obvious design choice. One of ordinary skill in the art would be aware of the desirability and availability of soybean immature embryos as an explant, and given the value of a method of a soybean transformation which has flexibility in terms of utilization of several different explant sources, would have been motivated to substitute the immature embryos known in the art for the cotyledons of Chee, with a reasonable expectation of success.

Applicant traverses saying primarily (Response, p. 6) that Chee, et. al. does not disclose any means for reducing the weight by limiting or reducing the moisture conditions to which the explant is exposed, and that Examiner does not provide any citation where this is stated suggested or described. Applicant's traversal is unpersuasive. Chee et. al.'s experimental set up will inherently produce weight reduction of the cocultured explant over a period of time. In the system of Chee, et. al., the Agrobacterium infected plant explant material is placed on moistened paper and incubated for over a period of time. In the Agrobacterium introduction process, a small volume (90 µl) of the Agrobacterium in liquid culture medium is injected into one of the

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two the cotyledons of a germinating soybean seed. Then the Agrobacterium-infected half seeds are placed on a sterile H₂O moistened paper towel and incubated for 4 days at 26 degrees C. (p. 107, items 4 and 5). This germinating seedling explant is very moist, since water is required for physiological process of germination; for the same reason, the explant has a defined weight. The surrounding air has much less water, in the gaseous form of water, than the explant. Water will tend to evaporate from the explant into the air of the surroundings, since the system will tend toward equilibrium, obeying the Second Law of Thermodynamics (Tanford, p. 183, 4th ¶). When water changes from a liquid to a gas, it changes in density, decreasing in density. Density is mass per unit volume. One gram of liquid water occupies a volume of one ml (from physical tables, provided), whereas one gram of water-saturated air occupies a volume of 1700 milliliters. The water evaporating from the explant will no longer contribute to the weight of the explant, and the weight of the explant will decrease. Since no time frame for the weight reduction period is given, it can vary from very small to very large. Eventually the moist Agrobacterium cocultivated explant will become dry due to water evaporation, again governed by the Second Law of Thermodynamics. At some time during this evaporation process, the weight of the Agrobacterium cocultivated explant will be reduced by 20% and also by 35%. This weight reduction will be controlled by removal of water from the vessel containing the explant, because the air surrounding the explant will take up the water and the air will diffuse out of the vessel. Yes, again, governed by the Second Law of Thermodynamics.

Accordingly, the claimed invention is prima facie obvious.

Remarks

9. No claim is allowed.
10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

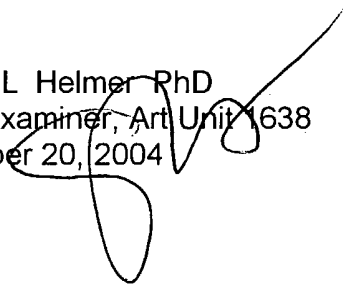
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Georgia L. Helmer whose telephone number is 571-272-0796. The examiner can normally be reached on 8:30 - 5:00.

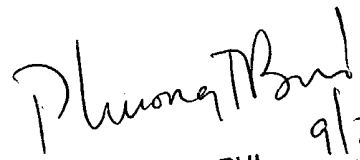
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson can be reached on 571-272-0804. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Georgia L. Helmer PhD
Patent Examiner, Art Unit 1638
September 20, 2004




9/20/04
PHUONG T. BUI
PRIMARY EXAMINER